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Expression of human alpha 2-macroglobulin cDNA in baby hamster kidney fibroblasts: secretion of high levels of active alpha 2-macroglobulin.

Boel E, Kristensen T, Petersen CM, Mortensen SB, Gliemann J, Sottrup-Jensen L.

Bioscience, Novo Nordisk A/S, Bagsvaerd, Denmark.

Human alpha 2-macroglobulin (alpha 2M) is a unique 720-kDa proteinase inhibitor with a broad specificity. Unlike most other proteinase inhibitors, it does not inhibit proteolytic activity by blocking the active site of the proteinase. During complex formation with a proteinase, alpha 2M entraps the proteinase molecule in a reaction that involves large conformational changes in alpha 2M. We describe the molecular cloning of alpha 2M cDNA from the human hepatoblastoma cell line HepG2. The cDNA was subcloned under control of the adenovirus major late promoter in a mammalian expression vector and introduced into the baby hamster kidney (BHK) cell line. Transformed clones were isolated and tested for production of human alpha 2M with a specific enzyme-linked immunosorbent assay. Human recombinant alpha 2M (r alpha 2M), secreted and purified from isolated transfected BHK cell lines, was structurally and functionally compared to alpha 2M purified from human serum. The results show that r alpha 2M was secreted from the BHK cells as an active proteinase-binding tetramer with functional thiol esters. Cleavage reactions of r alpha 2M with methylamine and trypsin showed that the recombinant product, which was correctly processed at the N-terminus, exhibited molecular characteristics similar to those of the human serum derived reference. Moreover, r alpha 2M-trypsin complex bound to purified human placental alpha 2M receptor with an affinity indistinguishable from that of a complex formed from serum-derived alpha 2M and trypsin.

PMID: 1694456 [PubMed - indexed for MEDLINE]

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Prostate specific antigen-alpha 2-macroglobulin complexes in prostate cancer patient sera.

Heeb MJ, Espana F, Gittes RF, Griffin JH.

Scripps Research Institute

Quantitative immunoblotting of prostate specific antigen was in (with little of it being free) with little of it being free inhibitors in patient sera complexes. Each complex specific antibodies. When with alpha 2-macroglobulin 40% free antigen, approximately 20% complex specific antigen reacts inhibitor in plasma and cancer patients.

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...t sera revealed that most prostate ...ymotrypsin or alpha 2-macroglobulin ...ate specific antigen with these protease ...resis with the respective purified ...om patient sera by absorption with ...as added to normal plasma, complexes ...hr, the distribution was approximately ...n alpha 2-macroglobulin, and ...otrypsin. These data show that prostate ...roglobulin than with any other protease ...th alpha 2-macroglobulin in vivo in

PMID: 8624498 [PubMed]

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